



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/245,442

02/04/1999

DONALD M. BELLENGER

15886-219

4893

20306

7590

05/03/2006

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP
300 S. WACKER DRIVE
32ND FLOOR
CHICAGO, IL 60606

EXAMINER

NGUYEN, PHUONGCHAU BA

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/245,442

Applicant(s)

BELLENGER, DONALD M.3

Examiner

Phuongchau Ba Nguyen

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-10, 14-21 and 23-31 is/are rejected.
- 7) ☒ Claim(s) 6, 11-13, 22 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10-1-2 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections – 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1–3, 5, 7–10, 14–17, 18–21 and 23–24, 27–31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (6,018,526) in view of Calvignac (6,044,079).

Regarding claims 1–3, 5, 7–10, 14–17, and 18–21:

As claim 1: Liu (6,018,526) discloses a method of switching a packet, the method comprising:

computing (learning) a tag (indication) for a packet {col.5, lines 60–64};

looking up (determining) the tag (indication) in a table (table A0 66, A1 68 or B0 72, B1 74), the table comprised of entries {col.7, lines 38–41}, the entries associating switching information (passing the packets via the bridge; col.5, lines 44–46) with tags {col.5, lines 39–46}, and

using switching information associated with the tag in the table to switch the packet if there is an entry for the tag in the table {col.5, lines 44–46}.

Liu discloses all the claimed limitations, except (1) said switching information defining a route through a plurality of interconnected switch nodes.

However, in the same field of endeavor, Calvignac (6,044,079) discloses VCCs bundled into a VPC for transport through a sequence of network switches, wherein the VPC is identified by the VPI value in the cell header and the VPI value is used for transport between switches (i.e., Node to Node interface), see col.1, lines 10–40 (corresponding to (1)). Therefore, it would have been obvious to an artisan to apply Calvignac's teaching to Liu's system with the motivation being to provide connection-oriented transport of data across a network of switching devices.

As claim 2: Liu (6,018,526) discloses that the switching further comprises determining (by filter 64) the switching information if there is no entry for the tag in the table, and the determining comprising sending the packet to a

system with resources for routing a packet and determining switching information {col.5, lines 39-46}.

As claim 3: Liu (6,018,526) discloses updating the table to include an entry for the tag with switching information responsive to the determining {col.5, lines 61-67, col.6, lines 1-13}.

As claim 5: Liu (6,018,526) discloses that the entries in the table are removed if a tag corresponding to the entry has not be looked up in a predetermined period {col.6, lines 5-6}.

As claim 7: Liu (6,018,526) discloses that a plurality of tags are generated for the packet, the plurality of tags corresponding to a plurality of flow detectors {col.7, lines 34-41; col.7, line 66 to col.8, line 2; also col.5, lines 44-46}.

Art Unit: 2616

As claim 8: Liu (6,018,526) discloses that a plurality of tables are maintained, each table corresponding to one of the flow detectors {col.7, lines 34–41; col.7, line 66 to col.8, line 2}.

As claim 9: Liu (6,018,526) discloses that each of the tags in the plurality of tags includes information about the associated flow detector {col.7, lines 34–41; col.7, line 66 to col.8, line 2; also col.5, lines 44–46}.

As claim 14: Liu (6,018,526) discloses that the plurality of tags are computed in parallel by the plurality of flow detectors (fig.3 wherein two hash 86 & 88 generate hash values in parallel).

As claim 15: Liu (6,018,526) discloses that each of the plurality of tags computed by the plurality of flow detectors are the same length (8-bit hash value).

As claim 16: Liu (6,018,526) discloses that the plurality flow detectors are associated with a priority (period of time, e.g. 5 minutes; col.6, lines 7–9), and wherein the switching occurs according to the priority of the flow detector.

As claims 10 and 17,

Liu does not explicitly disclose that an error rate is measured based on the number of matches between tags in the table without regard to which flow detector is associated with a tag (claim 10) ; or the error rate of the switching system is measured based on the number of cross flow detector tag matches in the table (claim 17).

Calvignac (6,044,079) discloses in column 7, lines 41–46 wherein probability of a hash collision (error rate) is approximately 1.6 percent. Therefore, it would have been obvious to a skilled artisan to include the feature of the probability of hash collision as taught by Calvignac into Liu's switching system and the motivation being to manage congestion control of traffic on path connections {col.8, lines 19–23}.

As claim 18: Liu (6,018,526) discloses that the computing further comprises using a mask of bits (an 8-bit hash value; col.6, lines 31–32) of the packet as a seed for a hash code generator (hash circuit 98).

As claim 19: Liu (6,018,526) discloses that the hash code generator (hash circuit 98) is a pseudo random number generator {col.7, lines 34–36 wherein when a new packet arrives at port 92, the source address of the packet 94 is hashed to create an 8-bit hash value, thus the 8-bit hash value (i.e. 8-bit 219 & 220) was generated randomly in 0's and 1's numbers by the hash circuit 98}.

As claim 20: Liu (6,018,526) does not explicitly disclose that the hash code generator is a shift register with a feedback loop. Liu discloses generating an 8-bit hash value (i.e. 8-bit 219 & 220 in fig.10A wherein the 8-bit is generated randomly in 0 and 1 number). Thus, the shift register with feedback loop is inherent in the hash generator for generating the 8-bit of hash value in random 0's and 1's numbers. (see also Prenell et al 5,664,016 for showing the inherent

feature of hash function for generating a hash value in bits using a shift register with feedback loop)

As claim 21: Liu (6,018,526) discloses that the hash code generator has a non-zero probability of generating the same tag from different input packets {col.5, lines 46-48}.

Regarding claims 23, 24, 27-29, 31:

As claim 23: Liu (6,018,526) discloses in figures 2-3 a method comprising:

computing (learning) a tag (indication) for a packet {col.5, lines 60-64};

looking up (determining) the tag (indication) in a table (table A0 66, A1 68 or B0 72, B1 74), the table comprised of entries {col.7, lines 38-41}, the entries associating information about the flow (passing the packets via the bridge; col.5, lines 44-46) with tags {col.5, lines 39-46};

creating a new entry (hash value) in the table if there is no entry for the tag {col.5, lines 61-67 and col.6, lines 1-2};

removing entries that have not been accessed for a predetermined period from the table {col.6, lines 5–6}.

“updating information about the flow associated with the tag if there is an entry for the tag” is inherent in the creating a new entry and indication in the table and removing entries and indications from the table {col.5, lines 61–67, col.6, lines 1–13}.

Liu discloses all the claimed limitations, except (1) the information including route information specifying a route through a plurality of interconnected switch nodes.

However, in the same field of endeavor, Calvignac (6,044,079) discloses VCCs bundled into a VPC for transport through a sequence of network switches, wherein the VPC is identified by the VPI value in the cell header and the VPI value is used for transport between switches (i.e., Node to Node interface), see col.1, lines 10–40 (corresponding to (1)). Therefore, it would have been obvious to an artisan to apply Calvignac’s teaching to Liu’s system with the motivation being to provide connection-oriented transport of data across a network of switching devices.

As claim 24: Liu (6,018,526) discloses that the creating further comprises storing data extracted (SA 78 & 82) from the packet in the entry {col.5, lines 64 to col.6, line 2}.

As claim 27: Liu (6,018,526) discloses that the removing further comprises transferring (passing) the data associated with a tag (hash value) to a system (aging switch 102) with resources for storing information {col.6, lines 31–43}.

As claim 28 Liu (6,018,526) discloses that the computing further comprises using a mask of bits (an 8-bit hash value; col.6, lines 31–32) of the packet as a seed for a hash code generator (hash circuit 98).

As claim 29: Liu (6,018,526) discloses that the hash code generator (hash circuit 98) is a pseudo random number generator {col.7, lines 34–36 wherein when a new packet arrives at port 92, the source address of the packet 94 is

Art Unit: 2616

hashed to create an 8-bit hash value, thus the 8-bit hash value (i.e. 8-bit 219 & 220) was generated randomly by the hash circuit 98}.

As claim 30: Liu (6,018,526) does not explicitly disclose that the hash code generator is a shift register with a feedback loop. Liu discloses generating an 8-bit hash value (i.e. 8-bit 219 & 220 in figure 10A wherein the 8-bit is generated randomly in 0 and 1 number). Thus, the shift register with feedback loop is inherent in the hash generator for generating the 8-bit of hash value in random 0's and 1's numbers. (see also Prenell-5,664,016 for showing the inherent feature of hash function for generating a hash value in bits using a shift register with feedback loop)

As claim 31: Liu (6,018,526) discloses that the hash code generator has a non-zero probability of generating the same tag from different input packets {col.5, lines 46-48}.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (6,018,526) in view of Clavignac (6,044,079) and further in view of Griesmer (5,555,405).

Liu (6,018,526) does not explicitly disclose including an entry in the table for the tag associated with a switching instruction indicating that packets should be dropped until the determining is complete.

Griesmer (5,555,405) discloses a mutual exclusion circuit 91 for ensuring that the frame forwarding circuit 54 cannot access the hash table 90 while the packing process 80 is writing the location of the new forwarding entry set to the pointer field of a hash table entry. Therefore, it would have been obvious to a skilled artisan to implement Griesmer's teaching of the mutual exclusion circuit 91 into the bridge of Liu's system and the motivation being to prevent from access either a partially written hash table entry or a partially copied forwarding entry set {col.15, lines 15-21; fig.4c & 5}.

4. Claims 25–26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (6,018,526) in view of Calvignac (6,044,079) and further in view of Anderson (6,021,202).

Liu does not explicitly disclose the packet is sent to a system with resources for analyzing the packet and determining billing information (claim 25) to be associated with the entry for the tag (claim 26).

Anderson (6,021,202) discloses that the packet (electronic transaction; i.e., electronic check or fund; col.7, lines 4–60) is sent to a system (bank) with resources (figs.2, 6, 10, 16–17, 31, 42) for analyzing the packet and determining billing information (i.e. signature, amount; fig.6) {claim 25} to be associated with the entry for the tag (sha 132; fig.6){claim 26}. Therefore, it would have been obvious to a skilled artisan to implement Anderson's teaching of different types of electronic document utilized the hash technique into the packet in Liu's system and the motivation being to reduce costs of creating and mailing a document, to control timing transaction, such as payments, both through future dating of transaction, and to reduce fraud including forgery, alternation, duplication, and fraudulent depositing {col.15, lines 39–52}.

Allowable Subject Matter

5. Claims 6, 11–13, 22, 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In

no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is 571-272-3148. The examiner can normally be reached on Monday-Friday from 10:00 a.m. to 2:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 571-272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the

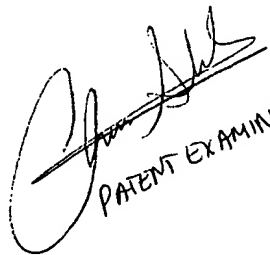
Application/Control Number: 09/245,442

Page 16

Art Unit: 2616

Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-

9197 (toll-free).



PATENT EXAMINER, 2616

P. Chau
Phuongchau Ba Nguyen
Examiner,
Art Unit 2616



Approved
PN 4.27.6

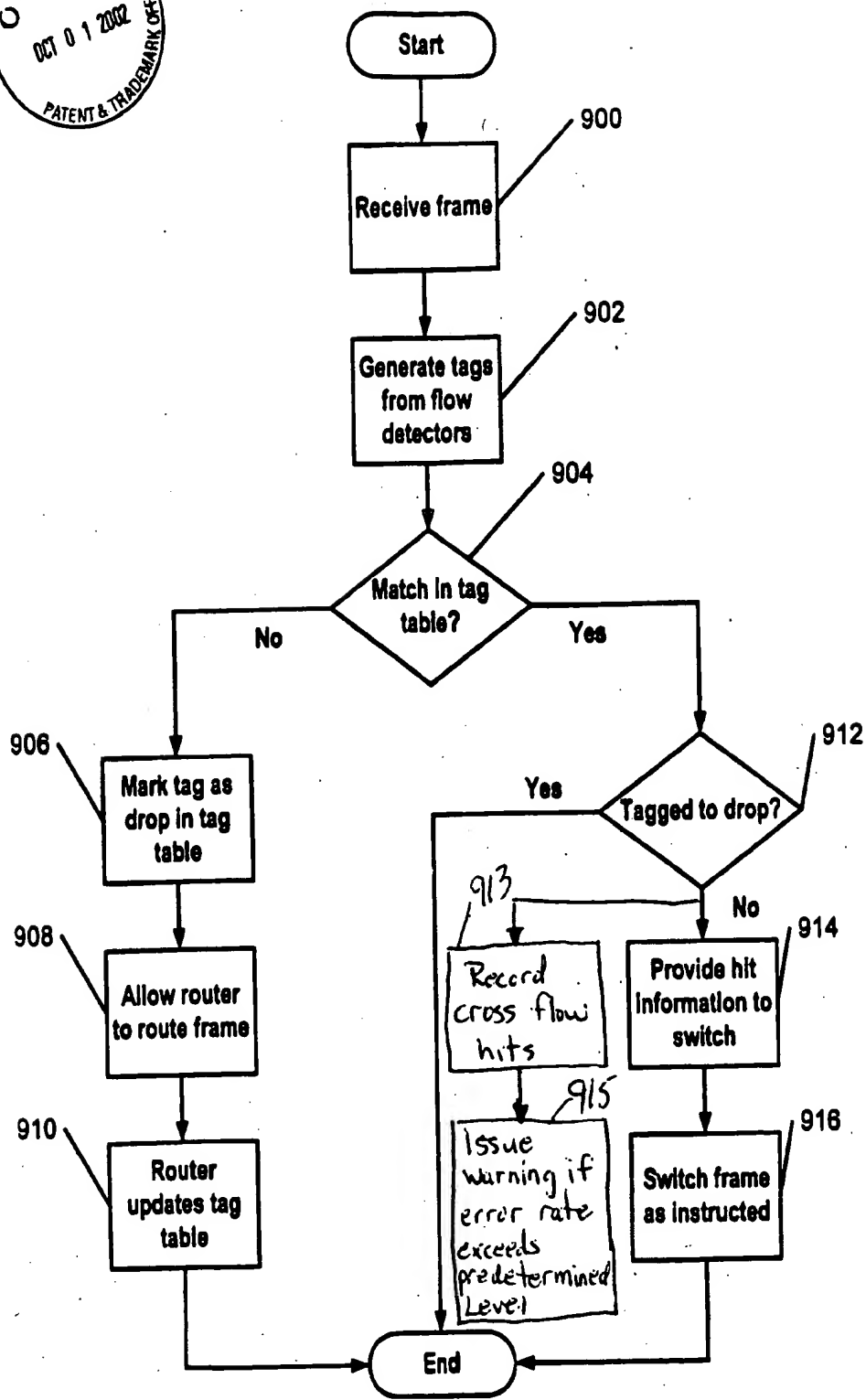


FIG. 9